The
Countywide Coordinated Implementation Strategy
and
Watershed Implementation Plans
for Montgomery County

Department of Environmental Protection
Montgomery County Maryland

Public Comment Meeting
Rockville, MD
March 10, 2011

Meeting Agenda

6:00-6:05	Welcome and Introductions
6:05-6:35	Overview of Countywide Strategy and Watershed Implementation Plans
6:35-7:20	Open House Period – Informal Small Group Discussions
7:20-7:30	Break
7:30-7:45	Report Out on Open House
7:45-8:55	Public Comment Period
8:55-9:00	Meeting Evaluation
9:00	Adjourn

Must Address Urban Water Quality Impacts

Untreated oily runoff from a parking lot

Threats to infrastructure

Illegal dumping

Why are we here?

Too much flow and too many pollutants

Why are we here?

Too much trash

Why are we here?

Must meet Permit Requirements

- Add stormwater management to an additional 20% of impervious area (4,300 acres) currently not treated to the maximum extent practicable (MEP)
- Meet wasteload allocations (WLAs) to Achieve Total Maximum Daily Loads (TMDLs)
  - TMDLs set pollutant reduction goals
- Meet commitments in Trash Free Potomac Treaty
- Increase use of Environmental Site Design (ESD) to the MEP
- Assure public input and stewardship opportunities

MS4 Permit Area

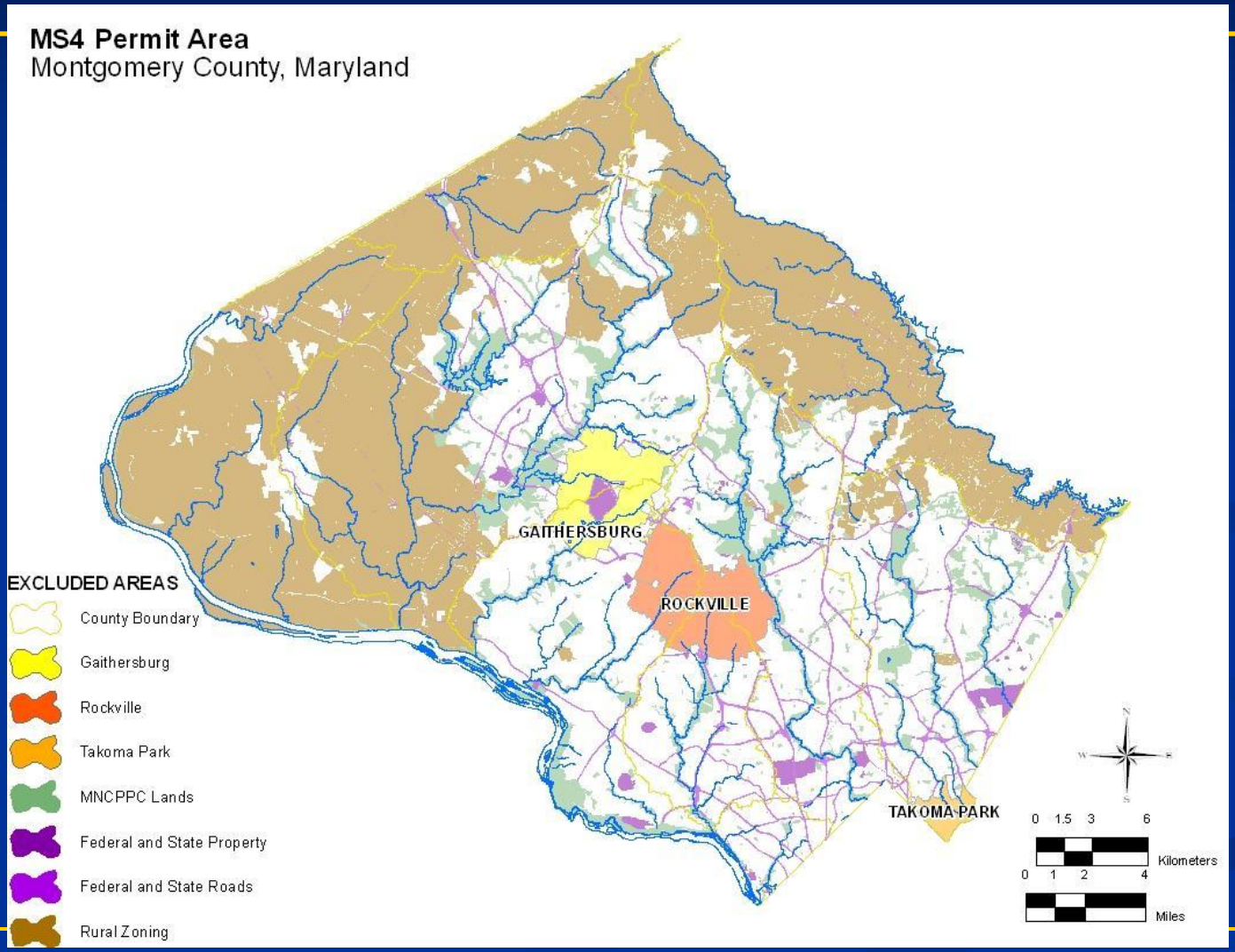


Table 2.2 Acres of Impervious Cover Treated by BMP Code and Design Era

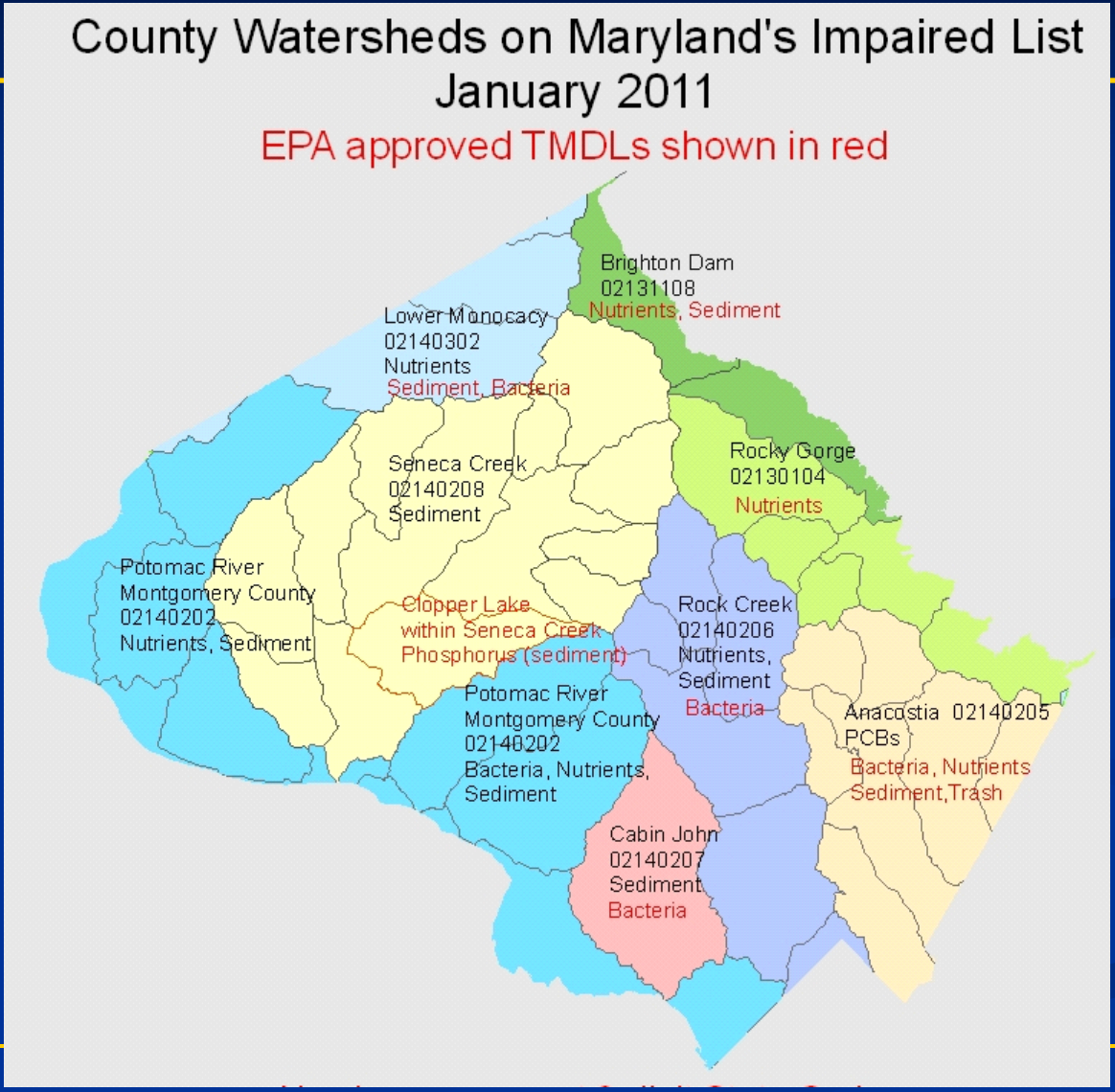
Countywide Strategy

- Impervious Cover Tracking

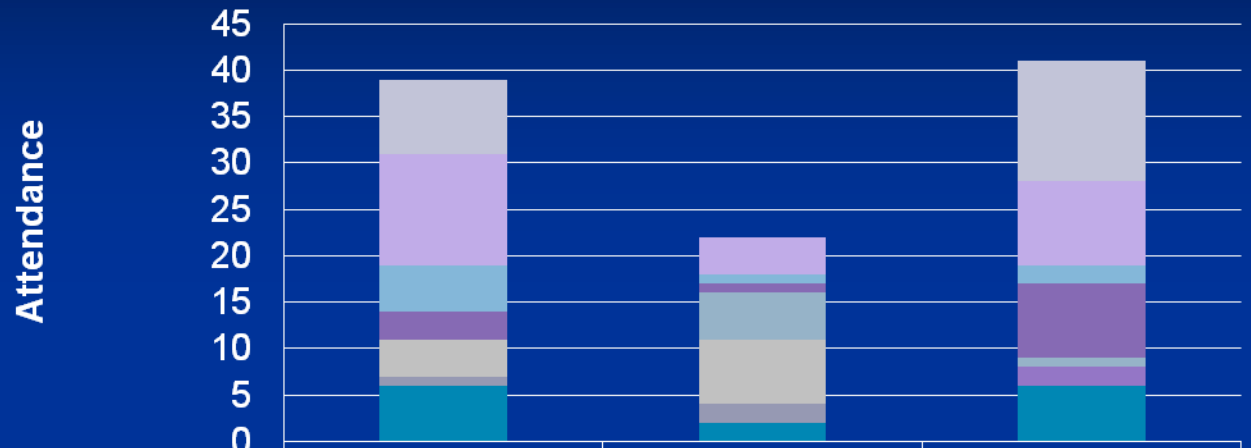
Description	Area in Acres
Total	324,552
Total Area of Impervious Surface	35,965
County Subject to Stormwater Permit (1)	138,649
Impervious Cover Subject to Stormwater Permit	25,119
Adequately Treated Impervious Cover	3,661
20% of Inadequately Treated Impervious Cover	**4,292**

(1) Exclusions include: Certain zoning codes, parklands, forests, municipalities with own stormwater management programs, state and federal properties, and state and federal maintained roads

Total Maximum Daily Loads (TMDLs)



How did we get here?

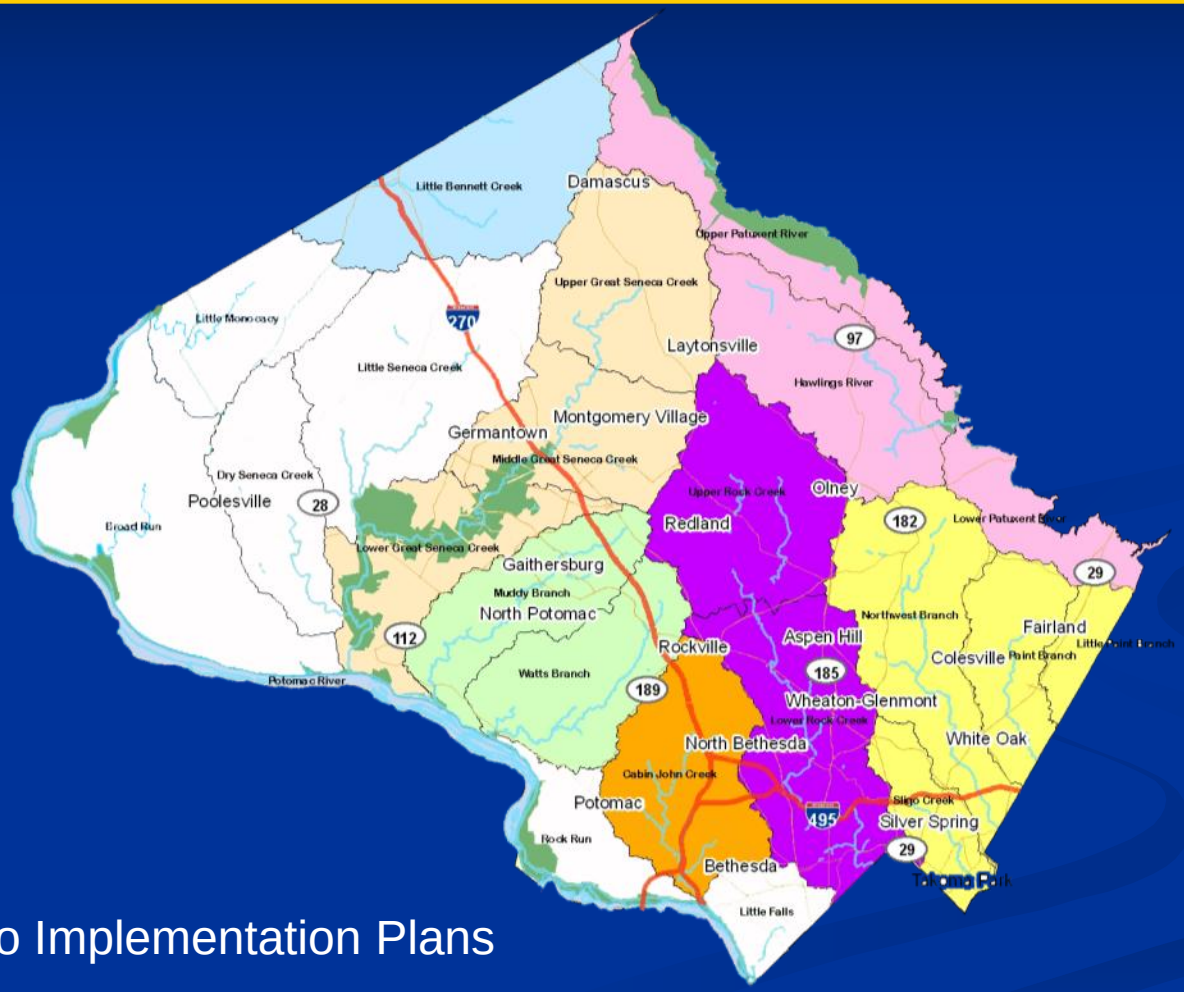


	Nov '09	Feb '10	Mar '10
Anacostia	8	0	13
Rock Creek	12	4	9
Potomac Direct	5	1	2
Cabin John	3	1	8
Muddy/Watts	0	5	1
Seneca Creek	4	7	0
Lower Monocacy	1	2	0
Patuxent	0	0	2
Other	6	2	6

Today

- Seven Watershed Implementation Plans
  - Local TMDLs
  - Restoration Potential
- Countywide Coordinated Implementation Strategy
  - Prioritize Restoration
  - Schedule and Timeline
  - Cost
- Receive public comments

Watershed Implementation Plans



= No Implementation Plans

Technical Analysis Team

Biohabitats

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Chesapeake Stormwater Network

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http://www.horsleywitten.com

www.capucoconsulting.com

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Analytical Approach

- Baseline conditions maps
  - Impervious cover
  - Existing practices
- Pollutants of particular concern
- Calibration to WLAs for TMDLs (where applicable)

Watershed/Subwatershed	Pollutants	Impervious Cover	Trash
Patuxent	TMDL	20% Countywide Goal	
Anacostia			TMDL
Rock Creek			Trash-Free Potomac
Great Seneca			
Cabin John Creek			
Lower Monocacy			
Muddy Branch/ Watts Branch			
Dry and Little Seneca			
Lower Potomac Direct			
Upper Potomac Direct			

Analytical Approach

- Map and evaluate Best Management Practices (BMPs)
  - County's planned stormwater management and stream restoration projects
- Look for additional opportunities
  - Environmental Site Design (ESD) retrofits
  - Habitat Restoration
- Stakeholder involvement and increased public stewardship (this is key!)
- Cost/benefit tracking

Analytical Approach

- Iterative Process

Watershed Implementation Plans

Restoration Potential

Countywide Strategy

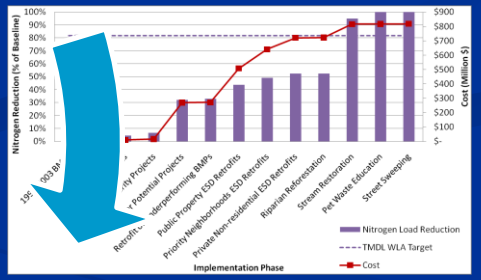
Permit Regulations & Stakeholder Input

Countywide Watersheds

Summary of Implementation Plan schedule with expected MS4 permit area WLA compliance endpoints

	2015	2017	2020	2025	2030	Permit/ TMDL 2017
Impervious Area Treated (acres)	4,302	6,014	7,722	10,518	11,154	6,008
% of Impervious Area Treated by ESD	18%	34%	47%	60%	63%	
Impervious Area Treatment Cost (Million $)	305	622	987	1,687	1,884	
% of Cost for ESD	53%	66%	70%	80%	80%	
Nitrogen (% Reduction)	18%	25%	36%	46%	51%	9%
Phosphorus (% Reduction)	17%	23%	34%	44%	46%	12%
Sediment (% Reduction)	23%	34%	54%	60%	62%	20%
Bacteria (% Reduction)	11%	15%	20%	28%	30%	
Trash (% Reduction)	18%	26%	33%	41%	42%	

Assumptions:
1. Does not inclde repeated Outreach and Education costs beyond FY2015
2. Does not include an inflatoin multiplier



Watershed Treatment Model

Land Use

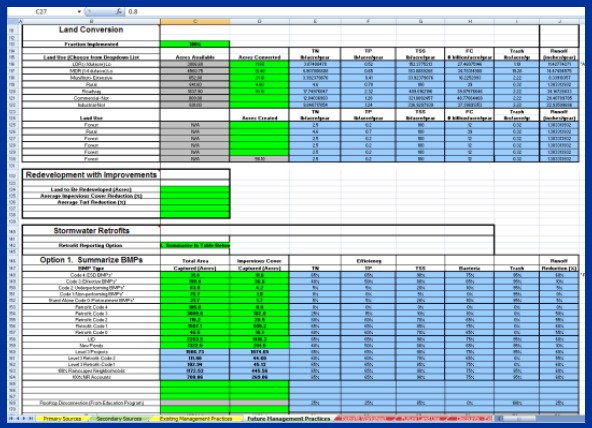
- EMC (Urban)
- Unit Load (Non-urban)

Soils & Rainfall

- Annual Runoff Volume

Pollutant Load

- Before
- treatment



BMPs

- Performance Code
- Removal Efficiency

Discount Factors

- BMP specific
- Treatability Factor

Pollutant Reduction

- Applied to baseline load

Analytical Approach

- Watershed Treatment Model
  - Completed and High Priority Projects
  - Low Priority Projects
  - Other Potential Projects
  - Public ESD Retrofits
  - Private ESD Retrofits
  - Riparian Reforestation
  - Stream Restoration
  - Programmatic Practices

Public Outreach and Education: *Programmatic Approaches*

- Eight Targeted Strategies
  - Pet Waste Pickup
  - Lawn Stewardship
  - Anti-Littering
  - Innovative Stormwater Management Awareness Campaign
  - Stream Stewards
  - Riparian Reforestation
  - Roof Runoff Reduction
  - Parking Lot Recharge Value

Modeling Approach

WTM 1.0
- Baseline Conditions

WTM 2.0
- Completed as of 2009; High Priority; Low Priority and Other Potential Projects

WTM 3.0
- ESD Strategies and Other Structural BMPs

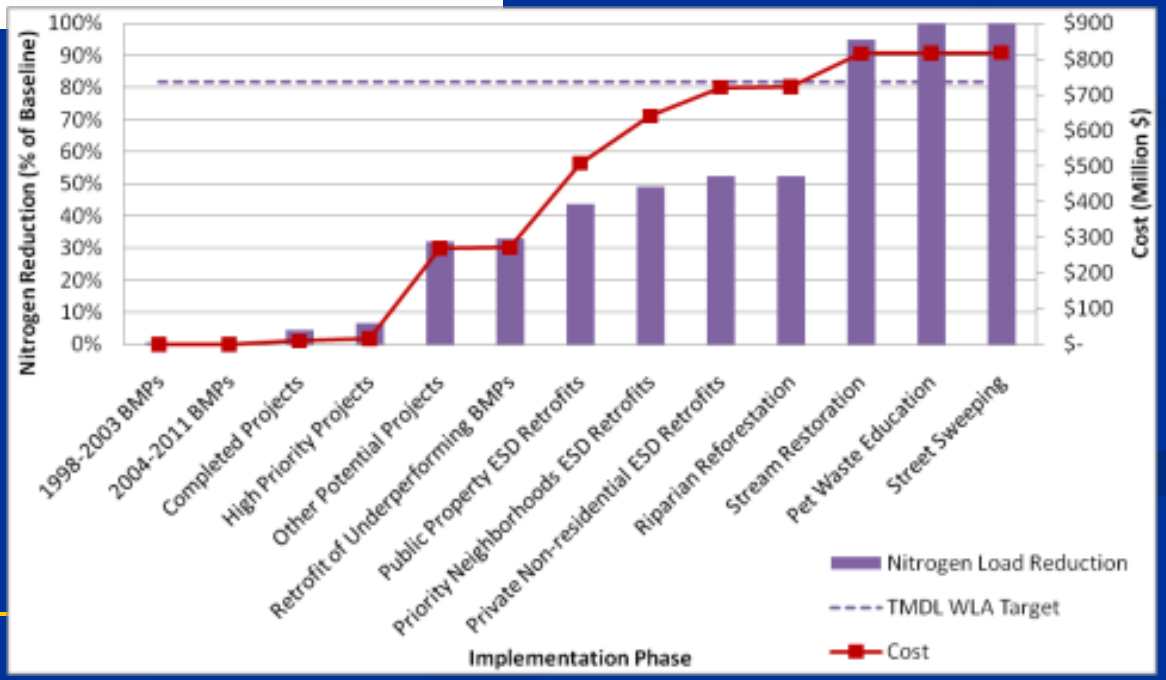
WTM 4.0
- Habitat Restoration

WTM 5.0
- MS4 Programmatic Practices

Restoration Potential- Anacostia

Implementation Phase	*Nitrogen Loading* *% reduction from baseline*	*Comments*	*Cumulative Cost* *Million $*
WTM Baseline Load*	**0%**	**Normalized to MDE Baseline Load**	$ -
WTM 2.0	32%	**Completed, High Priority, Low Priority and Other Potential Projects**	$ 270
WTM 3.0	52%	**ESD Strategies and Other Structural BMPs**	$ 722
WTM 4.0	95%	**Habitat Restoration**	$ 815
WTM 5.0	104%	**MS4 Programmatic Practices**	$ 817
TMDL WLA	81.8%		

* Excludes existing BMPs approved after the TMDL data collection period of 1995-1997.



Countywide Strategy – Schedule and Drivers

Table 4.1 Compliance Targets for Countywide Coordinated Implementation Strategy

Target Date	Compliance Target	Metric
2015	Meeting 20% impervious cover treatment requirement within the MS4 Permit cycle	~4,300 acres of Impervious Cover
2017	Meet the interim dates and targets for the Chesapeake Bay TMDL, which include specific regulated urban area reductions by 2017 for nutrients and sediment (based on Maryland Department of the Environment's Watershed Implementation Plan)	9%, 12%, and 20% respectively for TN, TP, and TSS reductions from baseline conditions
2020	Meet the full compliance and targets for the Chesapeake Bay TMDL, which include specific regulated urban area reduction by 2020 for nutrients and sediment (based on Maryland Department of the Environment's Watershed Implementation Plan) Meet additional impervious cover treatment targets associated with next MS4 Permit cycle (assumes another 20% target)	18%, 34%, and 37% respectively for TN, TP, and TSS reductions from baseline conditions ~3,400 acres of Impervious Cover (20% of impervious remaining after 2015)
2025	Meet additional impervious cover treatment targets associated with next MS4 Permit cycle (assumes another 20% target)	~2,750 acres of Impervious Cover (20% of impervious remaining after 2020)
2030	Out year compliance with other watershed TMDLs	100% compliance with MS4 Permit Area WLAs

Implementation Plan – Anacostia

Summary of Implementation Plan Schedule for the 2015 Fiscal Period with expected level of ESD and pollutant load reductions

Strategies	% Completed in Permit Cycle	IC Treated (acres)	ESD (% IC)	Cost (Million $)	ESD (% Cost)	% Reduction from Baseline				
						TN	TP	TSS	Bacteria	Trash
Completed and High Priority Projects	100.0%	315	9%	$16	30%	5.8%	5.9%	1.9%	6.2%	5.5%
Low Priority Projects	100.0%	194	8%	$5	61%	2.0%	2.1%	0.7%	2.2%	2.7%
Other Potential Projects	33.0%	732	20%	$82	24%	7.7%	8.0%	2.6%	8.4%	10.0%
Public ESD Retrofits	10.0%	96	100%	$24	100%	1.1%	1.1%	0.4%	1.2%	1.4%
Private ESD Retrofits	10.0%	86	100%	$21	100%	1.0%	1.0%	0.3%	1.0%	1.3%
Riparian Reforestation	0.0%	-	0%	$0	0%	0.0%	0.0%	0.0%	0.0%	0.0%
Stream Restoration	11.7%	-	0%	$11	0%	5.0%	6.6%	38.1%	0.0%	0.0%
Programmatic Practices	25.0%	-	0%	$0.9	0%	2.2%	2.1%	2.6%	2.0%	20.4%
Subtotal	**31.3%**	**1,421**	**26.3%**	**$160**	**45.4%**	**24.8%**	**26.8%**	**46.6%**	**21.0%**	**41.3%**

Pollutants with TMDLs

IC: Impervious Cover
ESD: Environmental Site Design
TN: Total Nitrogen
TP: Total Phosphorus
TSS: Total suspended solids

Implementation Plan – Anacostia

Summary of Implementation Plan schedule with expected MS4 permit area WLA compliance endpoints

	2015	2017	2020	2025	2030	Permit/ TMDL Targets
Impervious Area Treated (acres)	1,421	2,393	3,364	4,272	4,544	
% of Impervious Area Treated by ESD	26%	44%	61%	69%	71%	
Impervious Area Treatment Cost (Million $)	160	307	486	732	820	
% of Cost for ESD	45%	62%	71%	78%	78%	
Nitrogen (% Reduction)	25%	39%	68%	89%	100%	81.8%
Phosphorus (% Reduction)	27%	42%	77%	100%	100%	81.2%
Sediment (% Reduction)	47%	72%	100%	100%	100%	87.5%
Bacteria (% Reduction)	21%	33%	46%	59%	64%	87.9%
Trash (% Reduction)	41%	65%	89%	100%	100%	

TMDL Target NOT Met

TMDL Target Met

Assumptions:

1. *Does not include repeated Outreach and Education costs beyond FY2015*
2. *Does not include an inflation multiplier*

Countywide Strategy:

Implementation and Pollutant Reductions

Countywide Watersheds

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Next Steps

- Get your comments on these draft documents
  - Today, in oral testimony
  - In writing, during formal comment period
  - Or, visit our website and send us an e-mail
    www.montgomerycountymd.gov/stormwaterpermit

Keep in Mind for Comments

- Focus on broader application of strategies and not individual projects you may be aware of.
- Consider additional factors that should be considered as priorities are refined in future years
- Remember the permit requirements
  - Treating impervious cover
  - Local watershed TMDLs
  - Potomac Trash Treaty
  - Outreach and education

Questions? Open House